

## Identification and Characterization of Genes Expressed in Diseased Condition Silkworms (*Bombyx mori*): A Systematic Investigation

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**Abstract :** The silkworm *Bombyx mori* is a commercially important insect, but a major roadblock in silk production are silkworm diseases. Flacherie is one of the diseases of the silkworm, that affects the midgut of the 4th and 5th instar larvae and eventually makes them lethargic, stop feeding and finally result in their death. The concerned disease is a result of bacterial and viral infection and in some instances a combination of both. The present study aims to identify and study the expression level of genes in the flacherie condition. For the said work, total RNA was isolated from the infected larvae at their most probable infectious instar and cDNA was synthesized using Reverse Transcriptase PCR (RT-PCR). This cDNA was then used to amplify disease related genes whose expression levels were checked using quantitative PCR (qPCR) using the double delta Ct method. Cry toxin receptors like APN and BtR-175, ROS mediator Dual Oxidase are few proteins whose genes were overexpressed. Interestingly, pattern recognition receptors (PRRs) C-type lectins' genes were found to be downregulated. The results explain about the strong expression of genes that can distinguish the concerned protein in the midgut of diseased silkworm and thereby aiding knowledge in the field of inhibitor designing research.

**Keywords :** *Bombyx mori*, flacherie disease, inhibitor designing, up and down regulation

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